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RESEARCH ARTICLE

OUTCOME OF OPEN AND ENDOVASCULAR ILIAC ARTERY INTERVENTIONS - AN INSTITUTIONAL EXPERIENCE

Prof. Aashok Kumar, Dr. C. Shanmugavelayutham and Dr. Rishabh Gadhavi

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Abstract

Purpose: To study the outcome of open and endovascular intervention of iliac artery disease. Methods- This is a prospective study of total 60 patients admitted at Stanley medical college, Chennai in the past 2 years(2017-2019) and underwent open or endovascular iliac artery interventions.

Results: Most of the patients were male(98%). Mean age was 62 and ranges from 38 to 87 years. Indication for intervention were claudication pain(28%), rest pain(23%), ulcer/gangrene(49%). In 42 patients(70%) endovascular intervention done in form of only angioplasty in 15 patients(35%) and angioplasty with stenting done in 27 patients(65%). In 18 patients(30%) open intervention done in form of iliofemoral bypass in 15 patients(84%) and patchplasty in 3 patients(16%). In endovascular intervention primary patency rate was 87%, ulcer healing in 95%, ABI improvement in 86%, reintervention in 7%, complication in 12%, amputation in 7% and mortality rate was 2%. In open intervention primary patency rate was 89%, ulcer healing in 90%, ABI improvement in 94%, reintervention in 6%, complication in 22%, amputation in 11% and mortality rate was 11%.

Conclusion: This study illustrates that iliac artery interventions relieves symptoms effectively and amputation can be avoided in a vast majority of patients with threatened limbs. outcome of iliac artery intervention either open or endovascular is almost similar except for complications and mortality in which endovascular is better than open in our study. Patients not on follow up, continue to smoke, drug defaulter have increased the risk for amputation. Financial interest- No Conflict of interest- No Declaration- Not presented earlier.

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Introduction:-

Treatment of iliac occlusive disease (IOD) has undergone substantial changes in the last few years. Previously, most treatment guidelines recommended endovascular intervention for single, short, and focal lesions, and open surgery for extensive iliac occlusive disease. However, with recent improvements in technology and endovascular techniques, guidelines are now advocating endovascular treatment instead of open surgery as the primary treatment for focal or extensive disease.^(1,2) Use of stents in iliac angioplasty has also achieved long-term limb salvage and patency rates similar to those of open surgery, but with much lower morbidity and mortality rates.⁽³⁾

The purpose of this study is to study the outcome of open and endovascular intervention of iliac artery disease.

Methods:-

This is a prospective study of total 60 patients admitted at Stanley medical college, Chennai in the past 2 years(2017-2019) and underwent open or endovascular iliac artery interventions.

Patients with critical limb ischemia or incapacitating claudication who underwent iliac artery interventions during the index period were included in the study.

Patients who experienced an initial technical failure and patient with combined aorto iliac disease were excluded from the study.

In our department, we prefer to use bare-metal stents for iliac stenting. Patients are given 300 mg of clopidogrel as a loading dose immediately after the procedure, and continue taking 75 mg of clopidogrel per day for 6 months after surgery and aspirin (100 mg/day) for life. We used PTFE graft for iliofemoral bypass and iliac patchplasty.

Initial technical success of iliac angioplasty was defined as residual stenosis of $\leq 30\%$, no dissection after the procedure, and prompt restoration of blood flow in the previously stenotic or occluded artery. For open intervention success was defined by improvement in ABI of 0.15.

All the patients were followed-up via outpatient visits at the following times after discharge: 15 days, 1 month, 3 months, 6 months, 12 months, and every 6 months thereafter. The following information was recorded at each visit: pulse palpation, ankle-brachial index (ABI), and symptoms. Whenever possible, we also performed surveillance with arterial duplex ultrasonography at 1, 3, 6, and 12 months after surgery, and every 6 months thereafter. If any clinical or sonographic changes were noted, the case was discussed at a departmental meeting to assess whether re-intervention was required.

The primary outcome variable was limb salvage. Major amputation was defined as amputation proximal to the ankle. The secondary outcome variables were patency, ABI improvement, ulcer healing and operative mortality.

Results and Discussion:-

Most of the patients were male(98%). Mean age was 62 and ranges from 38 to 87 years.

Table no. 1:- Age wise distribution.

Age (years)	No. of patients
<40	2
40-50	4
51-60	23
>60	31

Indication for intervention were claudication pain(28%), rest pain(23%), ulcer/gangrene(49%).

Table no 2:- Indication for intervention.

Indication	Percentage of patients
Ulcer/gangrene	49%
Claudication pain	28%
Rest pain	23%

Most common risk factor associated were smoking followed by DM.

Table no 3:- Associated risk factors.

Risk factor	No. of patients
DM	28
SHT	22
CAD	18
CKD	2
CVA	3

SMOKER	56
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In 42 patients(70%) endovascular intervention done in form of only angioplasty in 15 patients(35%) and angioplasty with stenting done in 27 patients(65%).

Table no 4:- Endovascular intervention.

Intervention	No of patients
Angioplasty alone	15(35%)
Angioplasty with stenting	27(65%)

In 18 patients(30%) open intervention done in form of iliofemoral bypass in 15 patients(84%) and patchplasty in 3 patients(16%).

Table no 5:- Open intervention.

Intervention	No of patients
Iliac patchplasty	3 (16%)
Iliofemoral bypass	15 (84%)

In endovascular intervention primary patency rate was 87%,ulcer healing in 95%, ABI improvement in 86%,reintervention in 7%,complication in 12%,amputation in 7% and mortality rate was 2%.

In open intervention primary patency rate was 89%,ulcer healing in 90%, ABI improvement in 94%,reintervention in 6%,complication in 22%,amputation in 11% and mortality rate was 11%.

Table no 6:- Outcome of open and endovascular iliac intervention.

Outcome	Open	Endovascular
Patency(1year)	89%	87%
Ulcer healing	90%	95%
ABI improvement	94%	86%
Limb salvage	94%	96%
Complication	22%	12%
Reintervention	6%	7%
Amputation	6%	4%
Mortality	11%	2%

Complications-

In open intervention 4 patients(22%) had complication in post operative period.out 4 patients 3 had incision site infection which was managed conservatively with broad spectrum antibiotics.one patient had lymphorrea from femoral incision which was managed by Sartorius flap cover.

In endovascular intervention 5 patients(12%) had complications.out of which 4 patients had puncture site hematoma which was managed conservatively and 1 patient had puncture site bleeding which was stopped by giving 20 minutes of compression.

Reintervention-

In open procedure only 1 patient had reintervention in form of graft thrombectomy because of graft thrombosis on post operative day 1.

In endovascular procedure 3 patients had reintervention.out of which 1 had early restenosis after angioplasty alone which was managed by angioplasty with stenting. Two patients who were drug defaulter and continued to smoke came with late stent thrombosis which was managed by iliofemoral bypass.

Patency at 1 year-

For open intervention primary patency at one year was 89% in our study. Chiu et al.⁽⁴⁾, Indes et al.⁽³⁾, Timaran et al.⁽⁵⁾ had primary patency of 85.3%,91% and 89% respectively which was almost similar to our study.

For endovascular intervention primary patency at one year was 87% in our study. Klein et al⁽⁶⁾, Indes et al.⁽³⁾, Timaran et al.⁽⁵⁾ had primary patency of 85%,86% and 91% respectively which was almost similar to our study.

Conclusion:-

This study illustrates that iliac artery interventions relieves symptoms effectively and amputation can be avoided in a vast majority of patients with threatened limbs. Outcome of iliac artery intervention either open or endovascular is almost similar except for complications and mortality in which endovascular is better than open and for clinical improvement open interventions have more favourable results in our study. Patients not on follow up, continue to smoke, drug defaulter have increased the risk for amputation.

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